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(54) **CONTROL DEVICE AND RELATED USER INTERFACES AND TECHNIQUES FOR CONTROLLING SOLID-STATE LIGHTING DEVICE EMISSIONS**

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Description

FIELD OF THE DISCLOSURE

[0001] The present disclosure relates to solid-state lighting and more particularly to control devices and user interfaces to control emissions of solid-state lighting devices.

BACKGROUND

[0002] Modern solid-state lighting devices can be controlled using wireless computing devices, such as smartphones. Typically, a smartphone may host an application (colloquially known as an app) that provides a graphical user interface through which a user may control the output of a modern solid-state lighting device communicatively coupled with the wireless computing device. Through such an app, the user may provide input which causes the downstream lighting device to adjust its emissions.

[0003] EP 2 991 054 A1 describes an image display apparatus and method of operating the same. US 2015/0062892 A1 describes a circadian friendly LED light source. WO 2011/117786 A1 describes a method of imposing a dynamic color scheme on light of a lighting unit. US 2011/0159929 A1 describes multiple remote controllers that each simultaneously controls a different visual presentation of a 2D/3D display. US 2016/0050723 A1 describes system architecture of a tunable lamp system. The US 9,572,235 B2 describes a method and program for controlling a mobile terminal.

BRIEF DESCRIPTION OF THE DRAWINGS

[0004]

Figure 1A illustrates the standard CIE 1931 XY chromaticity space.

Figures 1B-1C illustrate several existing rectangular color-selection charts utilized in some example computing device user interfaces.

Figure 1D illustrates an existing circular color-selection chart utilized in an example computing device user interface.

Figure 2 is a block diagram illustrating an example lighting system configured in accordance with an embodiment of the present disclosure.

Figure 3 illustrates an example user interface provided by a control device, in accordance with an embodiment of the present disclosure.

Figure 4 illustrates an example user interface provided by a control device, in accordance with another embodiment of the present disclosure.

Figure 5 illustrates an example user interface provided by a control device, in accordance with another embodiment of the present disclosure.

[0005] These and other features of the present embodiments will be understood better by reading the following detailed description, taken together with the figures herein described. The accompanying drawings are not intended to be drawn to scale. In the drawings, each identical or nearly identical component that is illustrated in various figures may be represented by a like numeral. For purposes of clarity, not every component may be labeled in every drawing.

DETAILED DESCRIPTION

[0006] The invention is defined by a non-transitory computer program product as defined in claim 1 and a control device as defined in claim 12. Further embodiments are defined in the dependent claims.

[0007] A control device and related user interfaces (UIs) and techniques for controlling the light output of a solid-state lighting device are disclosed. In accordance with some embodiments, the control device may be configured to present a UI having one or more adjustment features operatively associated with one or more adjustment modes by which the control device may control the light output of a downstream lighting device communicatively coupled with the control device. Via a given adjustment feature, a user (or other controller) may adjust one or more characteristics, such as intensity, correlated color temperature (CCT), and color of the emissions of the lighting device. In some embodiments, the control device may be a computing device, mobile or otherwise, and the UI may be presented by a display element as a graphical UI (GUI). Numerous configurations and variations will be apparent in light of this disclosure.

35 General Overview

[0008] Figure 1A illustrates the standard CIE 1931 XY chromaticity space. This color chart uses specific color ordinance values x, y or u', v' which, although they may be familiar to various scientific and engineering communities, unfortunately have little meaning to typical end-users and the average consumer. Moreover, within the color chart of Figure 1A, it is difficult to select a precise color using one's finger or even some styluses.

[0009] Figures 1B-1C illustrate several existing rectangular color-selection charts utilized in some example computing device user interfaces. Figure 1D illustrates an existing circular color-selection chart utilized in an example computing device user interface. As can be seen from Figures 1B-1D, the colors are densely packed and are not organized in any especially harmonized or aesthetic manner. Consequently, some end-users have reported being dizzy or overwhelmed by these and other similar color charts. Also, as with the CIE color space of Figure 1A, it is difficult to select a precise color using one's finger or even some styluses with color charts of the types in Figures 1B-1D. Additionally, in the color-selection chart of Figure 1C, there is a high-lumen bright-

ness region directly in the center of the color space that is not conducive to precise color selection. Furthermore, with the color-selection chart of Figure ID, the end-user tends to use a finger to slide around the disk to select a desired color. This, however, produces a large amount of wireless data traffic that can lead to lamp and system performance issues, including crashes. Moreover, following the data traffic, the lamp receiving such input can change color quickly, which can be quite visually disturbing to bystanders.

[0010] Thus, and in accordance with some embodiments of the present disclosure, a control device and related user interfaces (UIs) and techniques for controlling the light output of a solid-state lighting device are disclosed. In accordance with some embodiments, the control device may be configured to present a UI having one or more adjustment features operatively associated with one or more adjustment modes by which the control device may control the light output of a downstream lighting device communicatively coupled with the control device. Via a given adjustment feature, a user (or other controller) may adjust one or more characteristics, such as intensity, correlated color temperature (CCT), and color of the emissions of the lighting device. In some embodiments, the control device may be a computing device, mobile or otherwise, and the UI may be presented by a display element as a graphical UI (GUI).

[0011] In some embodiments, the disclosed UI may be implemented, for example, in an application-based form suitable for use on a computing device, mobile or otherwise. In some embodiments, the disclosed UI may be implemented, for example, in a webpage-based form suitable for use in a web browser on a computing device, mobile or otherwise. In some embodiments, the disclosed UI may be implemented, for example, in a form suitable for use in a lighting control console (e.g., a lighting board or a lighting desk). As will be appreciated in light of this disclosure, a given UI provided as variously described herein may be provided via physical control features, virtual control features, or a combination thereof.

[0012] It should be noted that although the disclosed control device is generally discussed herein in the example context of being a computing device, mobile or otherwise, and therefore the UIs may be displayed as graphical UIs (GUIs), the present disclosure is not intended to be so limited. For instance, in some cases, the UI may be implemented, for example, with control devices (e.g., physical, electronic, etc.) other than computing devices. In a more general sense, and in accordance with some embodiments, a UI configured as variously provided herein may be embodied in hardware, software, or some combination thereof, and the host control device may be customized, as desired for a given target application or end-use.

[0013] In at least some cases, the disclosed control device may provide a UI that is generally aesthetic, having a clean visual layout that allows for precise control

over light output while also being user-friendly. Moreover, the disclosed control device may be compatible for use with lighting devices and platforms, including smart devices and platforms, and may not require any change to hardware or firmware of any of the various elements along the control/communication pathway (e.g., solid-state lamp, wireless communications gateway, cloud/network elements, or computing device).

[0014] In accordance with some embodiments, the disclosed control device may be configured to output a given control signal to a downstream lighting device, for instance, to adjust its output only after selection and adjustment of a given emissions characteristic is made by a user (or other controller). In this manner, there may be less wired or wireless data traffic, and the lighting device receiving the input may avoid sporadic changes in its output, reducing visual disturbance to onlookers, and reduce the opportunity for system crashes.

20 System Architecture and Operation

[0015] Figure 2 is a block diagram illustrating an example lighting system 1000 configured in accordance with an embodiment of the present disclosure. As can be seen, system 1000 may include a control device 100 (discussed below in detail) and one or more solid-state lighting devices 300. A given lighting device 300 may be an individual or plurality of solid-state emitters, a lamp or luminaire including solid-state emitter(s), or any other solid-state lighting element, as will be apparent in light of this disclosure. In accordance with some embodiments, a given lighting device 300 may be a solid-state lighting device, configured for wired and/or wireless communication, and optionally may be a smart solid-state lighting device.

[0016] Communication between any or all elements of system 1000 may be provided via any one or combination of suitable wired and wireless communications means, as will be apparent in light of this disclosure. In some cases, control device 100 may be configured to be directly communicatively coupled with a lighting device 300. In some other cases, however, control device 100 may be configured to communicate indirectly through an intervening or otherwise intermediate network 500 (optional) for facilitating the transfer of data between control device 100 and lighting device 300. Network 500 may be any suitable communications network and, at least in some cases, may include supporting infrastructure and/or functionalities, such as a server and a service provider, but such features are not necessary to carry out communication via network 500.

[0017] In accordance with some embodiments, control device 100 may be configured to output a control signal to a downstream lighting device 300 with which it is communicatively coupled, directly or indirectly, to control the light output thereof. More specifically, control device 100 may be configured, in accordance with some embodiments, to provide for electronic adjustment of any one or

combination of light emissions characteristics of lighting device 300, including the intensity (e.g., brightness/dimness), correlated color temperature (CCT), and color of light emitted. In some cases, control device 100 may be a computing device, mobile or otherwise, such as a smartphone or a tablet computer, to name a few options. In some other cases, however, control device 100 may be a dedicated control device (e.g., such as a remote control or programming or setup device) associated with a given lighting device 300.

[0018] As can be seen from Figure 2, control device 100 may include a communication module 110, which may be configured to provide communication between control device 100 and either (or both) a lighting device 300 and network 500. To such ends, communication module 110 may be configured for communication utilizing any one, or combination, of suitable wired and/or wireless communication means, such as Universal Serial Bus (USB), Ethernet, FireWire, Wi-Fi, Bluetooth, ZigBee, digital multiplexer (DMX), digital addressable lighting interface (DALI), infrared (IR), IEEE 802.11 wireless local area network (WLAN), and cellular data service, among others. As desired for a given target application or end-use, communication module 110 may be configured as a transmitter, a receiver, or both (i.e., a transceiver). Other suitable configurations for communication module 110 will depend on a given application and will be apparent in light of this disclosure.

[0019] Control device 100 also may include one or more processors 120, which may be configured to perform operations associated with control device 100 and any components and modules thereof. In accordance with some embodiments, a given processor 120 may be configured to process or otherwise interpret input (from a user or other source) received, for example, through a user interface (UI) 150 provided at display 140 and/or an application 136 stored in memory 130, each discussed below. As discussed herein, such input may include any one, or combination, of intensity, CCT, and color selection input, among other input, which may be utilized in adjusting the light output of a lighting device 300 communicatively coupled with control device 100. In accordance with some embodiments, a given processor 120 optionally may be configured to process or otherwise interpret input received from either (or both) lighting device 300 and network 500. Other suitable configurations for processor(s) 120 will depend on a given application and will be apparent in light of this disclosure.

[0020] Control device 100 further may include memory 130, which may be configured to be utilized, for example, for processor workspace for processor(s) 120 and/or to store media, programs, applications, or other content on control device 100 on a temporary or permanent basis. To such ends, memory 130 may be of any suitable type (e.g., RAM and/or ROM, or other suitable memory) and size, and in some cases, may be implemented with volatile memory, nonvolatile memory, or a combination thereof. Other suitable configurations for memory 130

will depend on a given application and will be apparent in light of this disclosure.

[0021] Memory 130 may include one or more modules stored therein that can be accessed and executed, for example, by processor(s) 120. For instance, memory 130 may include an operating system (OS) module 132, which may be configured, in accordance with some embodiments, to aid in processing input (e.g., received through UI 150 provided at display 140 and/or an application 136 stored in memory 130). OS module 132 can be implemented with any suitable OS, mobile or otherwise.

[0022] Memory 130 may include a user interface (UI) module 134 configured to provide, in part or in whole, a UI 150 (e.g., such as a graphical user interface, or GUI) via display 140, discussed below, or otherwise via control device 100. To that end, UI module 134 may include known, custom or proprietary UI construction code (or instruction sets) that are generally well-defined and operable to present one or more control features 160 via UI 150 for selection and/or manipulation by a user (or other controller). Although Figure 2 illustrates UI module 134 as being implemented in memory 130, the present disclosure is not intended to be so limited. For instance, in some embodiments, UI module 134 may be implemented in a combination of locations (e.g., memory 130 and display 140), thereby providing a UI module 134 that is, in a general sense, functionally distributed.

[0023] Memory 130 also may include one or more applications 136 (colloquially, apps) stored therein, and one or more of such applications 136 may be configured to facilitate presentation and/or operation of UI 134. Other suitable configurations for any of the various modules of memory 130, or control device 100 more generally, will depend on a given application and will be apparent in light of this disclosure.

[0024] A given module of control device 100 may be implemented in any one, or combination, of suitable programming languages, such as C, C++, objective C, JavaScript, or custom or proprietary instruction sets, to name a few options. A given module of control device 100 may be encoded, for example, on a machine-readable medium that, when executed by a processor (e.g., such as a processor 120), carries out the desired functionality of that portion of control device 100. The computer-readable medium may be, for example, a hard drive, compact disk, memory stick, server, or any suitable non-transitory computer/computing device memory that includes executable instructions, or a plurality or combination of such memories. Other embodiments may be implemented, for instance, with gate-level logic or an application-specific integrated circuit (ASIC) or chip set or other such purpose-built logic. Some embodiments may be implemented with a microcontroller having input/output capability (e.g., inputs for receiving user inputs; outputs for directing other components) and embedded routine(s) for carrying out a given desired functionality. In a more general sense, the functional module(s) of control device 100 may be

implemented in any one, or combination, of hardware, software, and firmware, as desired for a given target application or end-use.

[0025] As can be seen from Figure 2, control device 100 also may include a display 140, which may be configured to display images, video, text, or any other desired content, including any of the elements of a UI 150, as variously described herein. In some cases, display 140 may be integrated with control device 100, whereas in some other cases, it may be a stand-alone component configured to communicate with control device 100 (e.g., via communication module 110) using any suitable wired and/or wireless communications techniques.

[0026] In accordance with some embodiments, control device 100 may be configured to receive input via one or more touch-sensitive elements. For instance, in some embodiments, display 140 optionally may be touch-sensitive, in part or in whole. To that end, display 140 may be configured to utilize any one, or combination, of resistive or capacitive touch-sensing, or any other suitable touch-sensing techniques, as will be apparent in light of this disclosure. In some other embodiments, control device 100 additionally or alternatively may include (or otherwise be configured to be communicatively coupled with) a touch-sensitive surface, such as a touch-sensitive track pad. A given optional touch-sensitive element may be configured to detect or otherwise sense direct contact and/or the proximate presence of a user's finger, a stylus, or other suitable touch-sensitive-compatible implement at a given touch-sensitive location (e.g., of display 140 or other element). A given touch-sensitive element may be configured to translate such input into an electronic signal that may be processed by control device 100 (e.g., by a processor 120) and manipulated or otherwise used to trigger a UI 150 action, such as any of those discussed herein.

[0027] In accordance with some embodiments, provision of either (or both) a touch-sensitive display 140 and a touch-sensitive surface may assist with the function of UI 150 (e.g., as provided by UI module 134) and the receipt of user or other input by control device 100 (e.g., via display 140 and/or an application 136). In accordance with some embodiments, a touch-sensitive element, such as a touch-sensitive display 140 and/or a touch-sensitive surface, may permit provision of a UI 150 including one or more control features 160 (discussed below) which may be utilized to provide input to control device 100 to be relayed to either (or both) lighting device 300 and network 500.

[0028] As previously noted, control device 100 may be configured, in accordance with some embodiments, to display a UI 150 via display 140 or otherwise provide a UI 150 via other suitable portion of control device 100 or remote device operatively coupled with control device 100. A given UI 150 may provide one or more control features 160, which may be utilized by a user (or other controller) to control the operation of any one, or combination, of a lighting device 300, the control device 100,

and an intervening network 500. A given control feature 160 may be of any desired configuration. For instance, a given control feature 160 may be provided as a scrollable wheel, a toggle, a button, a switch, a knob, a slider, or a dial, among other actuator options. Moreover, a given control feature 160 may be (or otherwise include) a physical element or a virtual element (e.g., a non-physical, light-based icon associated with a given actuator operation). Selection and manipulation of a given control feature 160 may be made with a user's finger, a stylus, or any other suitable implement, as will be apparent in light of this disclosure.

[0029] In accordance with some embodiments, a given control feature 160 provided by UI 150 may be configured to allow selection from and operation of any of the various module(s) and/or application(s) accessible to control device 100 to perform any of a wide variety of operations associated with a lighting device 300 (and optionally either or both control device 100 and network 500). In accordance with some embodiments, a given control feature 160 may be utilized to cause control device 100 to output one or more control signals that may be utilized in controlling the light output of a given lighting device 300, including adjusting any one, or combination, of emissions characteristics, such as intensity, CCT, and color, for example. Additional details of UI(s) 150 are provided below, for instance, with respect to Figures 3-5.

Adjustment Modes and Example User Interfaces

[0030] In accordance with some embodiments, control device 100 may be configured with one or more adjustment modes by which it may control characteristic(s) of the light output of a given lighting device 300. For a given adjustment mode, any relevant event interpretation codes (e.g., in cases in which control device 100 is a computing device) may be incorporated accordingly to provide for the performance desired for a given target application or end-use of control device 100.

[0031] In some embodiments, control device 100 may include an intensity adjustment mode, wherein the intensity (e.g., brightness/dimness) of the light output of a downstream lighting device 300 may be adjusted, as desired. Through intensity adjustment mode, control device 100 may output one or more control signals directly or indirectly (e.g., through a network 500) to a given lighting device 300, in response to which the intensity of the light output of that lighting device 300 may increase or decrease, as desired.

[0032] In some embodiments, control device 100 may include a Planck color adjustment mode, wherein the color (e.g., CCT) of the light output of a downstream lighting device 300 may be adjusted, as desired, according to a Planck color scheme. Through Planck color adjustment mode, control device 100 may output one or more control signals directly or indirectly (e.g., through a network 500) to a given lighting device 300, in response to which the color (e.g., CCT) of the light output of that light-

ing device 300 may change in accordance with a given applied Planck color scheme. As will be appreciated in light of this disclosure, Planck color adjustment mode alternatively may be known as natural color adjustment mode, CCT adjustment mode, or blackbody color adjustment mode, and is not intended to be limited only to the descriptor of Planck color.

[0033] In some embodiments, control device 100 may include a true color adjustment mode, wherein the color of the light output of a downstream lighting device 300 may be adjusted, as desired, according to a true color scheme. Through true color adjustment mode, control device 100 may output one or more control signals directly or indirectly (e.g., through a network 500) to a given lighting device 300, in response to which the color of the light output of that lighting device 300 may change in accordance with a given applied true color scheme. As will be appreciated in light of this disclosure, true color adjustment mode alternatively may be known as artificial color adjustment mode, RGB color adjustment mode, or rainbow color adjustment mode, and is not intended to be limited only to the descriptor of true color. Other suitable adjustment mode(s) with which control device 100 may be provided will depend on a given application and will be apparent in light of this disclosure.

[0034] As previously indicated, control device 100 may be configured for use in controlling the emissions of a given lighting device 300 with which it is communicatively coupled. To that end, UI 150 may include within its bounds a field of one or more selectable and manipulable control features 160 configured to aid a user (or other controller) in adjusting any one, or combination, of the brightness/dimness, CCT, and color(s) of light emitted by lighting device 300. In some cases where control device 100 includes or otherwise has access to a touch-sensitive element (e.g., a touch-sensitive display 140 and/or a touch-sensitive surface), UI 150 may include one or more virtual control features 160 that a user (or other controller) may manipulate to control the light output of lighting device 300. Utilizing UI 150, a user (or other controller) may enter various commands into control device 100 in a quick and easy manner that results in adjustment of the light emitted by lighting device 300.

[0035] UI 150 may have any of a wide range of configurations and, generally, may include a field of selectable control features, elements, icons, or other graphical objects. For instance, consider Figure 3, which illustrates an example UI 150 provided by a control device 100, in accordance with an embodiment of the present disclosure. As can be seen, in some embodiments, UI 150 may include an intensity adjustment feature 162, a Planck color adjustment feature 164, and a true color adjustment feature 166, each discussed below. As generally shown, any (or all) of features 162, 164, 166 may be provided, for instance, as a scrollable wheel-type control feature, which may be physical, virtual, or a combination thereof. Thus, in accordance with some embodiments, a scroll up or scroll down swiping movement of a given feature

162, 164, 166, with physical contact or proximal presence (e.g., via a gesture), may manipulate that feature 162, 164, 166, resulting in adjustment of a given corresponding emissions characteristic (e.g., intensity, CCT, or color) of one or more downstream lighting devices 300 communicatively coupled with control device 100. Also, as generally shown, all (or some sub-set) of features 162, 164, 166 may be arranged substantially adjacent one another to facilitate selection and operation via a user (or other controller). It should be noted, however, that the arrangement of features 162, 164, 166 may be customized, as desired for a given target application or end-use, and need not be limited only to the example side-by-side arrangement generally illustrated in Figure 3. In some instances, such as in the case of a UI 150 providing virtual control feature(s) 160, the arrangement of features 162, 164, 166 may be user-configurable on a temporary or permanent basis.

[0036] In accordance with some embodiments, intensity adjustment feature 162 may be operatively associated with an intensity adjustment mode of control device 100, as discussed above. Intensity adjustment feature 162 may be configured, in accordance with some embodiments, to adjust the intensity of (e.g., brighten and/or dim) the light output of a lighting device 300 communicatively coupled with control device 100. As feature 162 is manipulated by a user (or other controller), the brightness/dimness of the emissions of lighting device 300 may change accordingly. In accordance with some embodiments, feature 162 may be scrolled in a first direction to increase the intensity of the light output of a downstream lighting device 300. Scrolling feature 162 in a second direction may result in a decrease in intensity. To help convey the present or target intensity level, feature 162 may have one or more markings or indices, such as percentage markers or other desired markers indicative of intensity level. In cases of percentage markers, the percentage increments between demarcations may be provided as desired (e.g., $\pm 1\%$, $\pm 5\%$, $\pm 10\%$, or other percentage). As can be seen from the example embodiment of Figure 3, feature 162 may include percentage markers ranging from 1-100% (or 0-100%), where 100% corresponds with the full brightness state of the target lighting device 300, and 1% corresponds with a nearly full dimming state. If provided, 0% may correspond with the off state (e.g., full dimming state) of target lighting device 300, for instance.

[0037] In accordance with some embodiments, Planck color adjustment feature 164 may be operatively associated with a Planck color adjustment mode of control device 100, as discussed above. Planck color adjustment feature 164 may be configured, in accordance with some embodiments, to adjust the CCT of the light output of a lighting device 300 communicatively coupled with control device 100. As feature 164 is manipulated by a user (or other controller), the CCT of the emissions of lighting device 300 may change accordingly. In accordance with some embodiments, feature 164 may be scrolled in a

first direction to lower the CCT of the light output of a downstream lighting device 300. Scrolling feature 164 in a second direction may result in raising the CCT. In some embodiments, feature 164 may have an adjustment range from about 1,500-6,500 K, though in other embodiments, other CCT values outside of or within that example range may be provided. The CCT values provided by feature 164 may be presented as a continuous band of CCT color options or as separate bands, delineated as desired. If Planck color adjustment mode is active, then control device 100 optionally may load the last saved Planck color chart to Planck color adjustment feature 164 of UI 150 for manipulation by a user (or other controller).

[0038] In some instances, feature 164 may provide CCT selection in a cyclical manner; that is, feature 164 may be scrolled through in a single direction, running through all (or some sub-set) of available CCT selection options and then, at the end of the list, begin again at the beginning of the list, providing a continuously scrollable experience in making a selection. In some other instances, however, feature 164 may provide CCT selection in a non-cyclical manner; that is, feature 164 may be scrolled through in a single direction only until it reaches a designated stopping endpoint at the end of the list, at which point scrolling in the opposite direction would be needed to cycle back through the list, providing a bounded scrollable experience in making a selection.

[0039] In accordance with some embodiments, true color adjustment feature 166 may be operatively associated with a true color adjustment mode of control device 100, as discussed above. True color adjustment feature 166 may be configured, in accordance with some embodiments, to adjust the color(s) of the light output of a lighting device 300 communicatively coupled with control device 100. As feature 166 is manipulated by a user (or other controller), the color(s) of the emissions of lighting device 300 may change accordingly. In accordance with some embodiments, feature 166 may be scrolled in a first direction to shift the color(s) of the light output of a downstream lighting device 300 toward a first end of the available output color chart. Scrolling feature 166 in a second direction may result in shifting the color(s) toward a second end of the available output color chart. In some embodiments, feature 166 may have an adjustment range which allows for selection of a visible color (e.g., having a wavelength in the range of about 380-750 nm), though in other embodiments, other colors outside of the visible range may be provided. More generally, the present disclosure is not intended to be limited only to visible colors, as in accordance with some embodiments, colors within other light bands, such as ultraviolet and infrared light, may be provided and adjusted via feature 166 in true color adjustment mode of control device 100. The colors provided by feature 166 may be presented as a continuous band or separate bands, delineated as desired. If true color adjustment mode is active, then control device 100 optionally may load the last saved true color chart to true color adjustment feature 166 of UI 150 for

manipulation by a user (or other controller).

[0040] In some instances, feature 166 may provide color selection in a cyclical manner; that is, feature 166 may be scrolled through in a single direction, running through all (or some sub-set) of available color selection options and then, at the end of the list, begin again at the beginning of the list, providing a continuously scrollable experience in making a selection. In some other instances, however, feature 166 may provide color selection in a non-cyclical manner; that is, feature 166 may be scrolled through in a single direction only until it reaches a designated stopping endpoint at the end of the list, at which point scrolling in the opposite direction would be needed to cycle back through the list, providing a bounded scrollable experience in making a selection.

[0041] As can be seen further from Figure 3, in accordance with some embodiments, UI 150 also may include one or more selection indicators 170. A given selection indicator 170 may be generally indicative to the user (or other controller) of the present or target selection of intensity, CCT, or color, as the case may be, for a downstream lighting device 300 communicatively coupled with control device 100. The specific configuration and location of a given selection indicator 170, as provided via UI 150, may be customized, as desired for a given target application or end-use.

[0042] In some instances, selection indicator(s) 170 optionally may be presented by UI 150 only for currently active adjustment mode(s). For instance, consider Figure 3, illustrating an example case in which true color adjustment mode is active, and thus true color adjustment feature 166 includes selection indicators 170 presented thereat. Contrariwise, in Figure 3, Planck color adjustment mode is inactive, and thus Planck color adjustment feature 164 does not include selection indicators 170 presented thereat. Of course, in the opposite case of an active Planck color adjustment mode and an inactive true color adjustment mode, selection indicators 170 instead may be presented at feature 164 and not at feature 166.

[0043] In accordance with some embodiments, UI 150 may provide a means for selecting between adjustment modes of control device 100, toggling them between active and inactive states. For example, in some embodiments, a user (or other controller) may tap or otherwise indicate selection of a given feature 162, 164, 166 presented by UI 150, toggling its associated adjustment mode. In the example case of Figure 3, for instance, true color adjustment mode is currently active, and thus true color adjustment feature 166 is manipulable to effectuate a change in the output of lighting device 300 if manipulated. Contrariwise, in Figure 3, Planck color adjustment mode is currently inactive, and thus Planck color adjustment feature 164 is not manipulable (or else does not effectuate a change in the output of lighting device 300 even if manipulated). If a user (or other controller) were to tap or otherwise indicate selection of feature 164, Planck color adjustment mode would be toggled on and true color adjustment mode would be toggled off. In this

manner, feature 164 then may receive input to effectuate change in the output of a downstream lighting device 300, whereas feature 166 may be permitted no longer to effectuate a change, even if input is (accidentally or intentionally) received thereby. Of course, in the opposite case of an active Planck color adjustment mode and inactive true color adjustment mode, the opposite manipulability and effectuation of light output changes may be provided.

[0044] In accordance with some embodiments, UI 150 may provide one or more adjustment features, such as any or all of features 162, 164, 166, that are enabled and manipulable by default, in a temporary or permanent manner. For a given feature 162, 164, 166, defaulting to an active or inactive state may be user-designated or automatic, as desired.

[0045] In some embodiments, UI 150 may present a separate feature for selecting between available adjustment modes. For instance, consider Figure 4, which illustrates an example UI 150 provided by a control device 100, in accordance with another embodiment of the present disclosure. As can be seen here, UI 150 may present a mode selection feature 174 configured to allow for selection between any of the example light adjustment modes of control device 100 discussed herein. As mode selection feature 174 is manipulated, the light adjustment mode of control device 100 may change accordingly. For instance, in the example case of Figure 4, mode selection feature 174 may be actuated in a first direction to make Planck color adjustment mode active. Actuating feature 174 in a second direction may result in activation of true color adjustment mode. To these ends, the specific configuration of feature 174 may be customized, as desired for a given target application or end-use, and in some cases, may be that of a simple toggle switch.

[0046] As generally discussed above with respect to Figures 3-4, for example, UI 150 may present any one, or combination, of features 162, 164, 166 as one or more scrollable wheel-type adjustment features. Generally, a given such feature 162, 164, 166 may be configured, in accordance with some embodiments, for cyclic scrolling (e.g., circular scrolling). That is, after swiping, sliding, or otherwise progressing through available adjustment options and reaching either the top or bottom of the list of available options, the content may reload at the bottom or top of the list, as the case may be, to allow for continued cycling through the options. This may provide for a generally continuous scrolling experience, with available options repeating. In accordance with some other embodiments, however, a given feature 162, 164, 166 may be configured for non-cyclic scrolling. That is, after swiping, sliding, or otherwise progressing through available adjustment options and reaching either the top or bottom of the list of available options, the content may not reload at the bottom or top of the list. Instead, the available options may be cycled only in one direction or the other. In accordance with some embodiments, a given feature 162, 164, 166 may be configured for inertial scrolling,

where the scrolling motion of that feature continues in a decaying fashion after release of the touch or termination of the gesture or proximate presence, simulating the appearance of an adjustment feature object with inertia.

[0047] It should be noted, however, that the present disclosure is not intended to be limited only to scrollable wheel-type adjustment features presented by UI 150. For instance, consider Figure 5, which illustrates an example UI 150 provided by a control device 100, in accordance with another embodiment of the present disclosure. As can be seen here, in some cases, UI 150 may present a slide bar control feature 180, which may be actuated to manipulate a given associated feature 162, 164, 166 to effectuate a change in the output of a downstream lighting device 300. Such a slide bar control feature 180 can be vertical (as generally shown in Figure 5), horizontal, or in any other desired orientation. As slide bar control feature 180 is moved, selection window 172 may move accordingly. In some instances, the region proximal to (e.g., disposed within) selection window 172 may be expanded as compared to region(s) distal to (e.g., disposed outside of) selection window 172, which may be more compressed. In at least some instances, this may facilitate accurate adjustment and selection of a given listed option to effectuate a change in the light output of a lighting device 300.

[0048] For a given adjustment feature 162, 164, 166, whether scrollable wheel-type, slide-bar type, or other, the adjustment increment may be customized, as desired for a given target application or end-use. Moreover, the progression of selections as presented by a given adjustment feature 162, 164, 166 as an element of UI 150 may be linear, logarithmic, exponential, geometric, segmented, or some other desired progression. In a more general sense, the fineness or coarseness of adjustment over the emissions of lighting device 300 may be customized for a given control feature 160, in accordance with some embodiments.

[0049] In view of the foregoing, it should be further noted that the present disclosure is not intended to be limited only to the various example UI 150 (e.g., GUI) schemes illustrated and discussed in the context of Figures 3-5, as any number of UI schemes and control features, both virtual and physical, in any desired arrangement may be provided by control device 100 to effectuate control over the emissions of a lighting device 300, in accordance with some embodiments. In a more general sense, a given control feature 160 may be associated with any standard, custom or proprietary function, capability, or application of control device 100 and may be customized to meet the preferences of a given user or target application or end-use. Moreover, although the present disclosure generally discusses control device 100 in the context of being an electronic device, such as a computing device, mobile or otherwise, the present disclosure is not intended to be so limited, as in some embodiments, non-electronic and/or non-computing elements may be present for control device 100 as part of UI 150 and contribute to control

over the light emissions of a given lighting device 300.

[0050] As will be further appreciated in light of this disclosure, although a given Figure 3, 4, 5 may depict true color adjustment feature 166 with only a few selectable color options immediately visible via UI 150, it is intended that feature 166 may provide for adjustment of any desired range of colors, including any one, or combination, of red (R), orange (O), yellow (Y), green (G), blue (B), indigo (I), and violet (V), for instance. Thus, in some embodiments, all available color adjustment options may be presented in the course of scrolling with feature 166. In some other embodiments, a sub-set of colors may be provided as scrollable options.

[0051] In accordance with some embodiments, rather than having two separate scrollable wheel-type adjustment features for Planck color adjustment feature 164 and true color adjustment feature 166, a single scrollable wheel-type feature combining the abilities of both features 164, 166 may be provided. That is, in some cases, options related to both Planck color adjustment mode and true color adjustment mode may be provided via a single adjustment feature presented by UI 150. Thus, as the single adjustment feature is scrolled or otherwise manipulated, options related to true color adjustment mode may follow options related to Planck color adjustment mode (or vice versa). In such cases, an adjustment mode selection feature 174 (discussed above) optionally may be omitted.

[0052] In some embodiments, a given feature 162, 164, 166 may be static, in that it does not change its visual appearance or overall layout as it is manipulated. In some other embodiments, however, a given feature 162, 164, 166 may be dynamic, allowing for such changes. For example, the region proximal to (e.g., disposed within) selection window 172 may be expanded as compared to region(s) distal to (e.g., disposed outside of) selection window 172, which may be more compressed. In at least some instances, this may facilitate accurate adjustment and selection of a given element to effectuate a change in the light output of a lighting device 300 communicatively coupled with control device 100.

[0053] It should be further noted that the present disclosure is not intended to be limited only to input provided by a user (or other controller) directly to control device 100, as in some cases, an intervening element, such as a peripheral device operatively coupled with control device 100, may be utilized by a user (or other controller) to provide input. For instance, control device 100 may be operatively coupled with a mouse (optionally including a physical scroll wheel), a trackball, a trackpad, or a slider control, among other options, which may be operated to manipulate a given feature 162, 164, 166 to effectuate adjustment of the light output of a downstream lighting device 300.

[0054] Numerous implementations will be apparent in light of this disclosure. One implementation provides a non-transitory computer program product encoded with instructions that, when executed by one or more proces-

sors, causes a process to be carried out. The computer program product may include one or more computer-readable media, such as, for example, a hard drive, compact disk, memory stick, server, cache memory, register memory, random-access memory (RAM), read-only memory (ROM), flash memory, or any suitable non-transitory memory that is encoded with instructions that can be executed by one or more processors, or a plurality or combination of such memories. The process includes presenting, via a control device configured to be communicatively coupled with a solid-state lighting device, at least one control feature operatively associated with at least one adjustment mode of the control device by which a light output of the solid-state lighting device can be adjusted, wherein the at least one control feature is: manipulable to cause the control device to transmit a control signal to the solid-state lighting device; and presented as a scrollable wheel-type feature. The process further includes transmitting the control signal, wherein the control signal provides for causing the solid-state lighting device to adjust at least one of an intensity, a correlated color temperature (CCT), and a color of the light output based on a manipulation of the at least one control feature. In some cases, transmitting the control signal occurs only after the manipulation of the at least one control feature has ceased. In some instances, the process further includes: adjusting, via the solid-state lighting device receiving the control signal, at least one of the intensity, the CCT, and the color of the light output based on the manipulation of the at least one control feature of the control device. In some cases: the at least one adjustment mode includes an intensity adjustment mode in which the control signal provides for causing the solid-state lighting device to adjust the intensity of the light output; and the at least one control feature includes an intensity adjustment feature operatively associated with the intensity adjustment mode such that manipulation of the intensity adjustment feature determines whether the control signal provides for causing the solid-state lighting device either to increase or decrease the intensity of the light output. In some instances: the at least one adjustment mode includes a Planck color adjustment mode, in which the control signal provides for causing the solid-state lighting device to adjust the CCT of the light output; and the at least one control feature includes a Planck color adjustment feature operatively associated with the Planck color adjustment mode such that manipulation of the Planck color adjustment feature determines whether the control signal provides for causing the solid-state lighting device either to increase or decrease the CCT of the light output. In some such instances: the control device includes a computing device including memory; and the process further includes presenting, via the Planck color adjustment feature, a CCT color chart last saved by the memory of the control device. In some cases: the at least one adjustment mode includes a true color adjustment mode, in which the control signal provides for causing the solid-state lighting device to adjust the color

of the light output; and the at least one control feature includes a true color adjustment feature operatively associated with the true color adjustment mode such that manipulation of the true color adjustment feature determines whether the control signal provides for causing the solid-state lighting device to change a color of the light output. In some such cases: the control device includes a computing device including memory; and the process further includes presenting, via the true color adjustment feature, a true color chart last saved by the memory of the control device. In some instances, the at least one control feature presented as the scrollable wheel-type feature is configured for cyclic scrolling. In some instances, the at least one control feature presented as the scrollable wheel-type feature is configured for non-cyclic scrolling. In some cases, the at least one control feature presented as the scrollable wheel-type feature is dynamic in that a visual appearance thereof, as presented by the control device, changes as the scrollable wheel-type feature is manipulated. In some cases, in changing the visual appearance of the scrollable wheel-type feature, a region of the scrollable wheel-type feature disposed within bounds of a selection window is expanded in visual presence as compared to a region disposed outside the bounds of the selection window. In some instances, the at least one control feature presented as the scrollable wheel-type feature is static in that a visual appearance thereof, as presented by the control device, does not change as the scrollable wheel-type feature is manipulated. In some cases, the at least one control feature includes: at least one of a Planck color adjustment feature and a true color adjustment feature; and a slide bar control feature configured to control manipulation of the at least one of the Planck color adjustment feature and the true color adjustment feature. In some instances, the process further includes: presenting, via the control device, at least one selection indicator configured to indicate a currently selected option presented by the at least one control feature. In some cases: the at least one adjustment mode includes a plurality of adjustment modes; and a given adjustment mode of the plurality of adjustment modes is toggleable between active and inactive states based on whether the at least one control feature operatively associated with the given adjustment mode is being manipulated. In some instances: the at least one adjustment mode includes a plurality of adjustment modes; and the process further includes presenting, via the control device, an adjustment mode toggling feature operatively associated with the plurality of adjustment modes and configured to toggle a given adjustment mode of the plurality of adjustment modes between active and inactive states based on a manipulation of the adjustment mode toggling feature.

[0055] Another implementation provides a user interface (UI) on a computing device. The UI includes a field of selectable control features configured such that selection therefrom electronically controls a light output of a solid-state lighting device configured to be communica-

tively coupled with the computing device. The field of selectable control features includes at least one of: a first control feature operatively associated with an intensity adjustment mode of the computing device by which an intensity of the light output of the solid-state lighting device can be adjusted, wherein the first control feature is manipulable to cause the computing device to output a first control signal to the solid-state lighting device, the first control signal providing for causing the solid-state lighting device to adjust the intensity of the light output; a second control feature operatively associated with a Planck color adjustment mode of the computing device by which a correlated color temperature (CCT) of the light output of the solid-state lighting device can be adjusted, wherein the second control feature is manipulable to cause the computing device to output a second control signal to the solid-state lighting device, the second control signal providing for causing the solid-state lighting device to adjust the CCT of the light output; and a third control feature operatively associated with a true color adjustment mode of the computing device by which a color of the light output of the solid-state lighting device can be adjusted, wherein the third control feature is manipulable to cause the computing device to output a third control signal to the solid-state lighting device, the third control signal providing for causing the solid-state lighting device to adjust the color of the light output; wherein the at least one of the first control feature, the second control feature, and the third control feature is presented as a scrollable wheel-type feature. In some cases, at least one of the intensity adjustment mode, the Planck color adjustment mode, and the true color adjustment mode is toggleable between active and inactive states based on whether the associated at least one of the first control feature, the second control feature, and the third control feature is being manipulated. In some instances, the field of selectable control features further includes an adjustment mode toggling feature: operatively associated with at least one of the intensity adjustment mode, the Planck color adjustment mode, and the true color adjustment mode; and configured to toggle the at least one of the intensity adjustment mode, the Planck color adjustment mode, and the true color adjustment mode between active and inactive states based on a manipulation of the adjustment mode toggling feature. In some cases, the computing device is configured to output at least one of the first control signal, the second control signal, and the third control signal only after manipulation of the associated at least one of the first control feature, the second control feature, and the third control feature has ceased. In some instances, the computing device at least one of: includes a touch-sensitive display configured to display the field of selectable control features as one or more light-based icons; and is configured to be communicatively coupled with a touch-sensitive display configured to display the field of selectable control features as one or more light-based icons.

[0056] Another implementation provides a control de-

vice configured to be communicatively coupled with a solid-state lighting device. The control device includes at least one of: a first control feature operatively associated with a Planck color adjustment mode of the control device by which a correlated color temperature (CCT) of a light output of the solid-state lighting device can be adjusted, wherein the first control feature is manipulable to cause the control device to output a first control signal to the solid-state lighting device, the first control signal providing for causing the solid-state lighting device to adjust the CCT of the light output; and a second control feature operatively associated with a true color adjustment mode of the control device by which a color of the light output of the solid-state lighting device can be adjusted, wherein the second control feature is manipulable to cause the control device to output a second control signal to the solid-state lighting device, the second control signal providing for causing the solid-state lighting device to adjust the color of the light output; wherein at least one of the first control feature and the second control feature is presented as a scrollable wheel-type feature. In some cases, the control device further includes a third control feature operatively associated with an intensity adjustment mode of the control device by which an intensity of the light output of the solid-state lighting device can be adjusted, wherein the third control feature is manipulable to cause the control device to output a third control signal to the solid-state lighting device, the third control signal providing for causing the solid-state lighting device to adjust the intensity of the light output, and wherein the third control feature is presented as a scrollable wheel-type feature. In some such cases: the control device includes each of the first control feature, the second control feature, and the third control feature; and each of the first control feature, the second control feature, and the third control feature is presented as a scrollable wheel-type feature. In some instances, at least one of the Planck color adjustment mode and the true color adjustment mode is toggleable between active and inactive states based on whether the associated at least one of the first control feature and the second control feature is being manipulated. In some cases, the control device further includes an adjustment mode toggling feature: operatively associated with at least one of the Planck color adjustment mode and the true color adjustment mode; and configured to toggle the at least one of the Planck color adjustment mode and the true color adjustment mode between active and inactive states based on a manipulation of the adjustment mode toggling feature. In some instances, the control device is further configured to output at least one of the first control signal and the second control signal only after manipulation of the associated at least one of the first control feature and the second control feature has ceased. In some cases, at least one of the first control feature and the second control feature is provided by the control device as a physical feature. In some cases, at least one of the first control feature and the second control feature is provided by the control device

as a virtual feature. In some instances, the control device: includes a computing device; and at least one of: further includes a touch-sensitive display configured to present thereat at least one of the first control feature and the second control feature as a light-based icon; and is further configured to be communicatively coupled with a touch-sensitive display configured to present thereat at least one of the first control feature and the second control feature as a light-based icon.

[0057] The foregoing description of example embodiments has been presented for the purposes of illustration and description. It is not intended to be exhaustive or to limit the present disclosure to the precise forms disclosed. It is intended that the scope of the present disclosure be limited not by this detailed description, but rather by the claims appended hereto.

Claims

1. A non-transitory computer program product encoded with instructions that, when executed by one or more processors (120) of a control device (100), causes a process to be carried out, wherein the control device (100) further comprises a user interface (150) and the control device (100) is configured to be communicatively coupled with a solid-state lighting device (300), the process comprising:

presenting, via the user interface (150) of the control device (100), at least one control feature (160) operatively associated with at least one adjustment mode of the control device (100) by which a light output of the solid-state lighting device (300) is adjustable, wherein the at least one control feature (160) is:
manipulable to cause the control device (100) to transmit a control signal to the solid-state lighting device (300); and
transmitting the control signal, wherein the control signal provides for causing the solid-state lighting device (300) to adjust at least one of an intensity, a correlated color temperature, and a color of the light output based on a manipulation of the at least one control feature (160);

characterized in that

the at least one control feature (160) is presented as a scrollable wheel-type feature, and transmitting the control signal occurs only after the manipulation of the at least one control feature (160) has ceased.

2. The non-transitory computer program product of claim 1, wherein:

the at least one adjustment mode comprises an intensity adjustment mode in which the control signal provides for causing the solid-state light-

- ing device (300) to adjust the intensity of the light output; and
the at least one control feature (160) comprises an intensity adjustment feature operatively associated with the intensity adjustment mode such that manipulation of the intensity adjustment feature determines whether the control signal provides for causing the solid-state lighting device (300) either to increase or decrease the intensity of the light output.
3. The non-transitory computer program product of claim 1, wherein:
- the at least one adjustment mode comprises a Planck color adjustment mode, in which the control signal provides for causing the solid-state lighting device (300) to adjust the CCT of the light output; and
the at least one control feature (160) comprises a Planck color adjustment feature operatively associated with the Planck color adjustment mode such that manipulation of the Planck color adjustment feature determines whether the control signal provides for causing the solid-state lighting device (300) either to increase or decrease the CCT of the light output;
wherein the control device (100) preferably comprises a computing device comprising memory; and
the process preferably further comprises:
presenting, via the Planck color adjustment feature, a CCT color chart last saved by the memory of the control device (100).
4. The non-transitory computer program product of claim 1, wherein:
- the at least one adjustment mode comprises a true color adjustment mode, in which the control signal provides for causing the solid-state lighting device (300) to adjust the color of the light output; and
the at least one control feature (160) comprises a true color adjustment feature operatively associated with the true color adjustment mode such that manipulation of the true color adjustment feature determines whether the control signal provides for causing the solid-state lighting device (300) to change a color of the light output;
wherein the control device (100) preferably comprises a computing device comprising memory; and
the process preferably further comprises:
presenting, via the true color adjustment feature, a true color chart last saved by the memory of the control device (100).
5. The non-transitory computer program product of claim 1, wherein the at least one control feature (160) presented as the scrollable wheel-type feature is configured for cyclic scrolling or for non-cyclic scrolling.
6. The non-transitory computer program product of claim 1, wherein the at least one control feature (160) presented as the scrollable wheel-type feature is dynamic in that a visual appearance thereof, as presented by the control device (100), changes as the scrollable wheel-type feature is manipulated; wherein preferably in changing the visual appearance of the scrollable wheel-type feature, a region of the scrollable wheel-type feature disposed within bounds of a selection window is expanded in visual presence as compared to a region disposed outside the bounds of the selection window.
7. The non-transitory computer program product of claim 1, wherein the at least one control feature (160) presented as the scrollable wheel-type feature is static in that a visual appearance thereof, as presented by the control device (100), does not change as the scrollable wheel-type feature is manipulated.
8. The non-transitory computer program product of claim 1, wherein the at least one control feature (160) comprises a plurality of control features (160) including the presented scrollable wheel-type feature and further comprising:
at least one of a Planck color adjustment feature and a true color adjustment feature; and
a slide bar control feature (160) configured to control manipulation of the at least one of the Planck color adjustment feature and the true color adjustment feature.
9. The non-transitory computer program product of claim 1, wherein the process further comprises:
presenting, via the control device (100), at least one selection indicator configured to indicate a currently selected option presented by the at least one control feature (160).
10. The non-transitory computer program product of claim 1, wherein:
the at least one adjustment mode comprises a plurality of adjustment modes; and
a given adjustment mode of the plurality of adjustment modes is toggleable between active and inactive states based on whether the at least one control feature (160) operatively associated with the given adjustment mode is being manipulated.

11. The non-transitory computer program product of claim 1, wherein:

the at least one adjustment mode comprises a plurality of adjustment modes; and
the process further comprises:
presenting, via the user interface (150) of the control device (100), an adjustment mode toggling feature
operatively associated with the plurality of adjustment modes and configured to toggle a given adjustment mode of the plurality of adjustment modes between active and inactive states based on a manipulation of the adjustment mode toggling feature.

12. A control device (100) configured to be communicatively coupled with a solid-state lighting device (300), the control device (100) comprising one or more processors (120) and a user interface (150), the user interface (150) comprising:

a field of selectable control features (160, 162, 164, 166) configured such that selection therefrom causes the one or more processors (120) to electronically control a light output of the solid-state lighting device (300), the field of selectable control features (160) comprising at least one of:

a first control feature (162) operatively associated with an intensity adjustment mode of the computing device by which an intensity of the light output of the solid-state lighting device (300) is adjustable, wherein the first control feature (162) is manipulable to cause the one or more processors (120) to output a first control signal to the solid-state lighting device (300), the first control signal providing for causing the solid-state lighting device (300) to adjust the intensity of the light output;
a second control feature (164) operatively associated with a Planck color adjustment mode of the computing device by which a correlated color temperature of the light output of the solid-state lighting device (300) is adjustable, wherein the second control feature (164) is manipulable to cause the one or more processors (120) to output a second control signal to the solid-state lighting device (300), the second control signal providing for causing the solid-state lighting device (300) to adjust the CCT of the light output; and
a third control feature (166) operatively associated with a true color adjustment mode of the computing device by which a color of the light output of the solid-state lighting de-

vice (300) is adjustable, wherein the third control feature (166) is manipulable to cause the one or more processors (120) to output a third control signal to the solid-state lighting device (300), the third control signal providing for causing the solid-state lighting device (300) to adjust the color of the light output;

characterized in that

at least one of the first control feature (162), the second control feature (164), and the third control feature (166) is presented as a scrollable wheel-type feature, and
the one or more processors (120) are configured to output at least one of the first control signal, the second control signal, and the third control signal only after manipulation of the associated at least one of the first control feature (162), the second control feature (164), and the third control feature (166) has ceased.

13. The control device (100) of claim 12, wherein at least one of the intensity adjustment mode, the Planck color adjustment mode, and the true color adjustment mode is toggleable between active and inactive states based on whether the associated at least one of the first control feature (162), the second control feature (164), and the third control feature (166) is being manipulated.
14. The control device (100) of claim 12, wherein the field of selectable control features (160) further comprises an adjustment mode toggling feature:

operatively associated with at least one of the intensity adjustment mode, the Planck color adjustment mode, and the true color adjustment mode; and
configured to toggle the at least one of the intensity adjustment mode, the Planck color adjustment mode, and the true color adjustment mode between active and inactive states based on a manipulation of the adjustment mode toggling feature.

15. The control device (100) of claim 12, wherein the user interface (150) comprises a touch-sensitive display (140) configured to display the field of selectable control features (160) as one or more light-based icons; and/or
is configured to be communicatively coupled with a touch-sensitive display configured to display the field of selectable control features (160) as one or more light-based icons.
16. The control device (100) of claim 12, wherein:
the one or more processors (120) are configured to

present each of the first control feature (162), the second control feature (164), and the third control feature (166) on the user interface (150) as a scrollable wheel-type feature.

Patentansprüche

1. Nichttransitorisches Computerprogrammprodukt, welches mit Befehlen kodiert ist, welche, wenn sie von einem oder mehreren Prozessoren (120) einer Steuervorrichtung (100) ausgeführt werden, bewirken, dass ein Prozess ausgeführt wird, wobei die Steuervorrichtung (100) ferner eine Benutzerschnittstelle (150) umfasst und die Steuervorrichtung (100) so konfiguriert ist, dass sie kommunikativ mit einer Festkörperbeleuchtungsvorrichtung (300) gekoppelt ist, wobei der Prozess umfasst:

Darstellen, über die Benutzerschnittstelle (150) der Steuervorrichtung (100), mindestens eines Steuermerkmals (160), das operativ mit mindestens einem Einstellmodus der Steuervorrichtung (100) verbunden ist, durch welchen eine Lichtleistung der Festkörperbeleuchtungsvorrichtung (300) einstellbar ist, wobei das mindestens eine Steuermerkmal (160) ist:

manipulierbar, um die Steuervorrichtung (100) zu veranlassen, ein Steuersignal an die Festkörperbeleuchtungsvorrichtung (300) zu übertragen; und

Übertragen des Steuersignals, wobei das Steuersignal dafür sorgt, dass die Festkörperbeleuchtungsvorrichtung (300) mindestens eine Intensität, eine korrelierte Farbtemperatur oder eine Farbe der Lichtausgabe auf der Grundlage einer Manipulation des mindestens einen Steuermerkmals (160) einstellt;

dadurch gekennzeichnet, dass

das mindestens eine Steuermerkmal (160) als ein rollbares radartiges Merkmal dargestellt wird und die Übertragung des Steuersignals erst erfolgt, nachdem die Betätigung des mindestens einen Steuermerkmals (160) beendet ist.

2. Nichttransitorisches Computerprogrammprodukt nach Anspruch 1, wobei:

der mindestens eine Einstellmodus einen Intensitätseinstellmodus umfasst, in welchem das Steuersignal dafür sorgt, dass die Festkörperbeleuchtungsvorrichtung (300) die Intensität der Lichtausgabe einstellt; und

das mindestens eine Steuermerkmal (160) ein Intensitätseinstellmerkmal umfasst, das operativ mit dem Intensitätseinstellmodus verbunden ist, so dass die Manipulation des Intensitätseinstellmerkmals bestimmt, ob das Steuersignal

dafür sorgt, dass die Festkörperbeleuchtungsvorrichtung (300) entweder die Intensität der Lichtausgabe erhöht oder verringert.

3. Nichttransitorisches Computerprogrammprodukt nach Anspruch 1, wobei:

der mindestens eine Einstellmodus einen Planck-Farbeinstellmodus umfasst, in welchem das Steuersignal dafür sorgt, dass die Festkörperbeleuchtungsvorrichtung (300) den CCT-Wert der Lichtabgabe einstellt; und das mindestens eine Steuermerkmal (160) ein Planck-Farbeinstellmerkmal umfasst, das operativ mit dem Planck-Farbeinstellmodus verbunden ist, so dass die Manipulation des Planck-Farbeinstellmerkmals bestimmt, ob das Steuersignal dafür sorgt, dass die Festkörperbeleuchtungsvorrichtung (300) entweder die CCT des Lichtausgangs erhöht oder verringert; wobei die Steuervorrichtung (100) vorzugsweise eine Rechenvorrichtung mit Speicher umfasst; und das Verfahren umfasst vorzugsweise weiterhin: über die Planck-Farbanpassungsfunktion eine zuletzt im Speicher des Steuergeräts (100) gespeicherte CCT-Farbkarte zu präsentieren.

4. Nichttransitorisches Computerprogrammprodukt nach Anspruch 1, wobei:

der mindestens eine Einstellmodus einen Echtfarben-Einstellmodus umfasst, bei dem das Steuersignal dafür sorgt, dass die Festkörperbeleuchtungsvorrichtung (300) die Farbe der Lichtausgabe einstellt; und

das mindestens eine Steuermerkmal (160) ein Echtfarben-Einstellmerkmal umfasst, welches operativ mit dem Echtfarben-Einstellmodus verbunden ist, so dass die Manipulation des Echtfarben-Einstellmerkmals bestimmt, ob das Steuersignal dafür sorgt, dass die Festkörperbeleuchtungsvorrichtung (300) eine Farbe der Lichtausgabe ändert;

wobei die Steuervorrichtung (100) vorzugsweise eine Rechenvorrichtung mit Speicher umfasst; und

das Verfahren umfasst vorzugsweise weiterhin: Darstellen einer zuletzt im Speicher des Steuergeräts (100) gespeicherten Echtfarbenkarte über die Funktion zur Einstellung der Echtfarben.

5. Nichttransitorisches Computerprogrammprodukt nach Anspruch 1, wobei das mindestens eine Steuermerkmal (160), welches als rollbares radartiges Merkmal dargestellt wird, für zyklisches Rollen oder für nichtzyklisches Rollen konfiguriert ist.

6. Nichttransitorisches Computerprogrammprodukt nach Anspruch 1, wobei das mindestens eine Steuermerkmal (160), das als rollbares radartiges Merkmal dargestellt wird, dynamisch ist, indem sich sein visuelles Erscheinungsbild, wie es von der Steuervorrichtung (100) dargestellt wird, ändert, wenn das rollbare radartige Merkmal manipuliert wird; wobei vorzugsweise beim Ändern des visuellen Erscheinungsbildes des rollbaren radartigen Merkmals ein Bereich des rollbaren radartigen Merkmals, der innerhalb der Grenzen eines Auswahlfensters angeordnet ist, im Vergleich zu einem Bereich, der außerhalb der Grenzen des Auswahlfensters angeordnet ist, in der visuellen Präsenz erweitert wird.
7. Nichttransitorisches Computerprogrammprodukt nach Anspruch 1, wobei das mindestens eine Steuermerkmal (160), welches als rollbares radartiges Merkmal dargestellt wird, insofern statisch ist, als sich seine visuelle Erscheinung, wie sie von der Steuervorrichtung (100) dargestellt wird, nicht ändert, wenn das rollbare radartige Merkmal manipuliert wird.
8. Nichttransitorisches Computerprogrammprodukt nach Anspruch 1, wobei das mindestens eine Steuermerkmal (160) eine Vielzahl von Steuermerkmalen (160) umfasst, einschließlich des dargestellten rollbaren radartigen Merkmals, und ferner umfassend:
- mindestens eines von einem Planck-Farbeinstellmerkmal und einem Echtfarbeinstellmerkmal; und
- ein Schieberegler-Steuerungsmerkmal (160), welches zum Steuern der Manipulation des Planck-Farbeinstellungsmerkmals und/oder des Echtfarbeinstellungsmerkmals konfiguriert ist.
9. Nichttransitorisches Computerprogrammprodukt nach Anspruch 1, wobei das Verfahren ferner umfasst:
- Darstellen, über die Steuervorrichtung (100), mindestens einer Auswahlanzeige, die so konfiguriert ist, dass sie eine aktuell ausgewählte Option anzeigt, die durch das mindestens eine Steuermerkmal (160) dargestellt wird.
10. Nichttransitorisches Computerprogrammprodukt nach Anspruch 1, wobei:
- der mindestens eine Einstellmodus umfasst eine Vielzahl von Einstellmodi; und
- ein gegebener Einstellmodus der Vielzahl von Einstellmodi zwischen aktiven und inaktiven Zuständen umschaltbar ist, basierend darauf, ob das mindestens eine Steuermerkmal (160), das

operativ mit dem gegebenen Einstellmodus verbunden ist, manipuliert wird.

11. Nichttransitorisches Computerprogrammprodukt nach Anspruch 1, wobei:

der mindestens eine Einstellmodus umfasst eine Vielzahl von Einstellmodi; und

das Verfahren umfasst ferner:

Darstellen, über die Benutzerschnittstelle (150) der Steuervorrichtung (100), eines Einstellmodus-Umschaltmerkmals, das operativ mit der Vielzahl von Einstellmodi verbunden ist und konfiguriert ist, um einen gegebenen Einstellmodus der Vielzahl von Einstellmodi zwischen aktiven und inaktiven Zuständen basierend auf einer Manipulation des Einstellmodus-Umschaltmerkmals umzuschalten.

12. Steuervorrichtung (100), die so konfiguriert ist, dass sie kommunikativ mit einer Festkörperbeleuchtungsvorrichtung (300) gekoppelt ist, wobei die Steuervorrichtung (100) einen oder mehrere Prozessoren (120) und eine Benutzerschnittstelle (150) umfasst, wobei die Benutzerschnittstelle (150) Folgendes umfasst:

ein Feld von auswählbaren Steuermerkmalen (160, 162, 164, 166), die so konfiguriert sind, dass eine Auswahl daraus den einen oder die mehreren Prozessoren (120) veranlasst, eine Lichtausgabe der Festkörperbeleuchtungsvorrichtung (300) elektronisch zu steuern, wobei das Feld von auswählbaren Steuermerkmalen (160) mindestens eines der folgenden Merkmale umfasst:

ein erstes Steuermerkmal (162), das operativ mit einem Intensitätseinstellmodus der Computervorrichtung verbunden ist, durch den eine Intensität der Lichtausgabe der Festkörperbeleuchtungsvorrichtung (300) einstellbar ist, wobei das erste Steuermerkmal (162) manipulierbar ist, um den einen oder die mehreren Prozessoren (120) zu veranlassen, ein erstes Steuersignal an die Festkörperbeleuchtungsvorrichtung (300) auszugeben, wobei das erste Steuersignal dafür sorgt, dass die Festkörperbeleuchtungsvorrichtung (300) die Intensität der Lichtausgabe einstellt;

ein zweites Steuermerkmal (164), das operativ mit einem Planck-Farbeinstellmodus der Computervorrichtung verbunden ist, durch den eine korrelierte Farbtemperatur der Lichtausgabe der Festkörperbeleuchtungsvorrichtung (300) einstellbar ist, wobei das zweite Steuermerkmal (164) manipu-

lierbar ist, um den einen oder die mehreren Prozessoren (120) zu veranlassen, ein zweites Steuersignal an die Festkörperbeleuchtungs Vorrichtung (300) auszugeben, wobei das zweite Steuersignal dafür sorgt, dass die Festkörperbeleuchtungs Vorrichtung (300) veranlasst wird, die CCT der Lichtausgabe einzustellen; und ein drittes Steuermerkmal (166), das operativ mit einem Echtfarben-Einstellmodus der Computervorrichtung verbunden ist, durch den eine Farbe der Lichtausgabe der Festkörper-Beleuchtungs Vorrichtung (300) einstellbar ist, wobei das dritte Steuermerkmal (166) manipulierbar ist, um den einen oder die mehreren Prozessoren (120) zu veranlassen, ein drittes Steuersignal an die Festkörper-Beleuchtungs Vorrichtung (300) auszugeben, wobei das dritte Steuersignal dafür sorgt, dass die Festkörper-Beleuchtungs Vorrichtung (300) die Farbe der Lichtausgabe einstellt;

dadurch gekennzeichnet, dass

mindestens eines von dem ersten Steuermerkmal (162), dem zweiten Steuermerkmal (164) und dem dritten Steuermerkmal (166) als ein rollbares radartiges Merkmal dargestellt wird, und der eine oder die mehreren Prozessoren (120) so konfiguriert sind, dass sie mindestens eines von dem ersten Steuersignal, dem zweiten Steuersignal und dem dritten Steuersignal erst ausgeben, nachdem die Manipulation des zugehörigen mindestens einen von dem ersten Steuermerkmal (162), dem zweiten Steuermerkmal (164) und dem dritten Steuermerkmal (166) beendet ist.

13. Steuervorrichtung (100) nach Anspruch 12, wobei mindestens einer der Modi Intensitätsanpassung, Planck-Farbanpassung und Echtfarbanpassung zwischen aktiven und inaktiven Zuständen umschaltbar ist, je nachdem, ob das zugehörige mindestens eine der ersten Steuerelemente (162), der zweiten Steuerelemente (164) und der dritten Steuerelemente (166) betätigt wird.
14. Steuervorrichtung (100) nach Anspruch 12, wobei das Feld der auswählbaren Steuereigenschaften (160) außerdem eine Umschaltfunktion für den Einstellmodus umfasst:

die operativ mit mindestens einem von dem Intensitätseinstellungsmodus, dem Planck-Farbeeinstellungsmodus und dem Echtfarbeeinstellungsmodus verbunden ist; und konfiguriert, um den Intensitätseinstellungsmodus,

den Planck-Farbeeinstellungsmodus und/oder den Echtfarbeeinstellungsmodus zwischen aktiven und inaktiven Zuständen umzuschalten, basierend auf einer Manipulation der Umschaltfunktion für den Einstellungsmodus.

15. Steuervorrichtung (100) nach Anspruch 12, wobei die Benutzeroberfläche (150) eine berührungsempfindliche Anzeige (140) umfasst, die so konfiguriert ist, dass sie das

Feld der auswählbaren Steuermerkmale (160) als ein oder mehrere lichtbasierte Symbole anzeigt; und/oder ist so konfiguriert, dass es kommunikativ mit einer berührungsempfindlichen Anzeige gekoppelt ist, die so konfiguriert ist, dass sie das Feld der auswählbaren Steuermerkmale (160) als ein oder mehrere lichtbasierte Symbole anzeigt.

16. Steuervorrichtung (100) nach Anspruch 12, wobei: der eine oder die mehreren Prozessoren (120) so konfiguriert sind, dass sie jedes von dem ersten Steuermerkmal (162), dem zweiten Steuermerkmal (164) und dem dritten Steuermerkmal (166) auf der Benutzeroberfläche (150) als ein rollbares radartiges Merkmal darstellen.

Revendications

1. Produit de programme informatique non transitoire codé avec des instructions qui, lorsqu'elles sont exécutées par un ou plusieurs processeurs (120) d'un dispositif de contrôle (100), provoquent l'exécution d'un processus, dans lequel le dispositif de contrôle (100) comprend en outre une interface utilisateur (150) et le dispositif de contrôle (100) est configuré pour être couplé de manière communicative avec un dispositif d'éclairage à semi-conducteurs (300), le processus comprenant:

présenter, par l'intermédiaire de l'interface utilisateur (150) du dispositif de contrôle (100), au moins une caractéristique de commande (160) associée de manière opérationnelle à au moins un mode d'ajustement du dispositif de contrôle (100) par lequel une sortie de lumière du dispositif d'éclairage à semi-conducteurs (300) est ajustable, dans lequel la au moins une caractéristique de commande (160) est: manipulable pour amener le dispositif de contrôle (100) à transmettre un signal de commande au dispositif d'éclairage à semi-conducteurs (300); et transmettre le signal de commande, dans lequel le signal de commande permet de faire en sorte

- que le dispositif d'éclairage à semi-conducteurs (300) ajuste au moins l'une d'une intensité, d'une température de couleur corrélée et d'une couleur de la sortie de lumière sur la base d'une manipulation de l'au moins une caractéristique de commande (160) ;
- caractérisé en ce que**
- l'au moins une caractéristique de commande (160) est présentée comme une caractéristique de type roue déroulante, et la transmission du signal de commande ne se produit qu'après que la manipulation de l'au moins une caractéristique de commande (160) a cessé.
2. Produit de programme informatique non transitoire de la revendication 1, dans lequel:
- l'au moins un mode de réglage comprend un mode de réglage d'intensité dans lequel le signal de commande permet de faire en sorte que le dispositif d'éclairage à semi-conducteurs (300) règle l'intensité de la sortie de lumière ; et
- l'au moins une caractéristique de commande (160) comprend une caractéristique de réglage d'intensité associée de manière opérationnelle au mode de réglage d'intensité de telle sorte que la manipulation de la caractéristique de réglage d'intensité détermine si le signal de commande permet d'amener le dispositif d'éclairage à semi-conducteurs (300) à augmenter ou à diminuer l'intensité de la sortie de lumière.
3. Produit de programme informatique non transitoire de la revendication 1, dans lequel:
- l'au moins un mode de réglage comprend un mode de réglage de la couleur de Planck, dans lequel le signal de commande permet d'amener le dispositif d'éclairage à semi-conducteurs (300) à régler le CCT de la sortie de lumière ; et
- l'au moins une caractéristique de commande (160) comprend une caractéristique d'ajustement de couleur de Planck associée de manière opérationnelle au mode d'ajustement de couleur de Planck de sorte que la manipulation de la caractéristique d'ajustement de couleur de Planck détermine si le signal de commande permet d'amener le dispositif d'éclairage à semi-conducteurs (300) à augmenter ou à diminuer le CCT de la sortie de lumière ;
- dans lequel le dispositif de contrôle (100) comprend de préférence un dispositif informatique comprenant une mémoire ; et
- le procédé comprend de préférence en outre: présenter, par l'intermédiaire de la fonction d'ajustement de couleur de Planck, un nuancier CCT enregistré en dernier par la mémoire du dispositif de contrôle (100).
4. Produit de programme informatique non transitoire de la revendication 1, dans lequel:
- l'au moins un mode de réglage comprend un mode de réglage de couleur réelle, dans lequel le signal de commande permet de faire en sorte que le dispositif d'éclairage à semi-conducteurs (300) règle la couleur de la sortie de lumière ; et
- l'au moins une caractéristique de commande (160) comprend une caractéristique d'ajustement de couleur vraie associée de manière opérationnelle au mode d'ajustement de couleur vraie de telle sorte que la manipulation de la caractéristique d'ajustement de couleur vraie détermine si le signal de commande permet d'amener le dispositif d'éclairage à semi-conducteurs (300) à changer une couleur de la sortie de lumière ;
- dans lequel le dispositif de contrôle (100) comprend de préférence un dispositif informatique comprenant une mémoire ; et
- le procédé comprend de préférence en outre: présenter, par l'intermédiaire de la fonction de réglage de couleur vraie, une charte de couleur vraie enregistrée en dernier par la mémoire du dispositif de contrôle (100).
5. Produit de programme informatique non transitoire de la revendication 1, dans lequel la au moins une caractéristique de commande (160) présentée comme la caractéristique de type roue à défilement est configurée pour un défilement cyclique ou pour un défilement non cyclique.
6. Produit de programme informatique non transitoire de la revendication 1, dans lequel la au moins une caractéristique de commande (160) présentée comme la caractéristique de type roue déroulante est dynamique en ce qu'une apparence visuelle de celle-ci, telle que présentée par le dispositif de contrôle (100), change lorsque la caractéristique de type roue déroulante est manipulée ;
- dans lequel, de préférence, lors de la modification de l'aspect visuel de l'élément de type roue à défilement, une région de l'élément de type roue à défilement disposée dans les limites d'une fenêtre de sélection est étendue en présence visuelle par rapport à une région disposée à l'extérieur des limites de la fenêtre de sélection.
7. Produit de programme informatique non transitoire de la revendication 1, dans lequel la au moins une caractéristique de commande (160) présentée comme la caractéristique de type roue déroulante est statique en ce qu'une apparence visuelle de celle-ci, telle que présentée par le dispositif de contrôle (100), ne change pas lorsque la caractéristique de type roue déroulante est manipulée.

8. Produit de programme informatique non transitaire de la revendication 1, dans lequel la au moins une caractéristique de commande (160) comprend une pluralité de caractéristiques de commande (160) incluant la caractéristique de type roue défilante présentée et comprenant en outre:
- au moins une caractéristique d'ajustement de la couleur de Planck et une caractéristique d'ajustement de la couleur réelle ; et
- une fonction de commande de barre coulissante (160) configurée pour commander la manipulation d'au moins l'une de la fonction de réglage de couleur de Planck et de la fonction de réglage de couleur réelle.
9. Produit de programme informatique non transitoire de la revendication 1, dans lequel le procédé comprend en outre:
- présenter, via le dispositif de contrôle (100), au moins un indicateur de sélection configuré pour indiquer une option actuellement sélectionnée présentée par la au moins une caractéristique de commande (160).
10. Produit de programme informatique non transitoire de la revendication 1, dans lequel:
- l'au moins un mode de réglage comprend une pluralité de modes de réglage ; et
- un mode de réglage donné de la pluralité de modes de réglage peut basculer entre des états actif et inactif en fonction du fait que l'au moins une caractéristique de commande (160) associée de manière opérationnelle au mode de réglage donné est manipulée.
11. Produit de programme informatique non transitoire de la revendication 1, dans lequel:
- l'au moins un mode de réglage comprend une pluralité de modes de réglage ; et
- le procédé comprend en outre: présenter, par l'intermédiaire de l'interface utilisateur (150) du dispositif de contrôle (100), une fonction de basculement de mode de réglage associée de manière opérationnelle à la pluralité de modes de réglage et configurée pour basculer un mode de réglage donné de la pluralité de modes de réglage entre des états actif et inactif sur la base d'une manipulation de la fonction de basculement de mode de réglage.
12. Dispositif de contrôle (100) configuré pour être couplé de manière communicative avec un dispositif d'éclairage à semi-conducteurs (300), le dispositif de contrôle (100) comprenant un ou plusieurs processeurs (120) et une interface utilisateur (150), l'in-

terface utilisateur (150) comprenant:

un champ de caractéristiques de commande sélectionnables (160, 162, 164, 166) configuré de telle sorte qu'une sélection à partir de celui-ci amène le ou les processeurs (120) à commander électroniquement une sortie de lumière du dispositif d'éclairage à semi-conducteurs (300), le champ de caractéristiques de commande sélectionnables (160) comprenant au moins l'un de:

une première caractéristique de commande (162) associée de manière opérationnelle à un mode de réglage d'intensité du dispositif informatique par lequel une intensité de la sortie de lumière du dispositif d'éclairage à semi-conducteurs (300) est réglable, dans lequel la première caractéristique de commande (162) peut être manipulée pour amener le ou les processeurs (120) à sortir un premier signal de commande vers le dispositif d'éclairage à semi-conducteurs (300), le premier signal de commande permettant d'amener le dispositif d'éclairage à semi-conducteurs (300) à régler l'intensité de la sortie de lumière ;

une seconde caractéristique de commande (164) associée de manière opérationnelle à un mode d'ajustement de couleur de Planck du dispositif de calcul par lequel une température de couleur corrélée de la sortie de lumière du dispositif d'éclairage à semi-conducteurs (300) est ajustable, dans lequel la seconde caractéristique de commande (164) peut être manipulée pour amener le ou les processeurs (120) à sortir un second signal de commande vers le dispositif d'éclairage à semi-conducteurs (300), le second signal de commande permettant de faire en sorte que le dispositif d'éclairage à semi-conducteurs (300) ajuste la TCC de la sortie de lumière ; et

une troisième caractéristique de commande (166) associée de manière opérationnelle à un mode de réglage de couleur réelle du dispositif informatique par lequel une couleur de la sortie de lumière du dispositif d'éclairage à semi-conducteurs (300) est réglable, dans lequel la troisième caractéristique de commande (166) peut être manipulée pour amener le ou les processeurs (120) à sortir un troisième signal de commande vers le dispositif d'éclairage à semi-conducteurs (300), le troisième signal de commande permettant d'amener le dispositif d'éclairage à semi-conducteurs (300) à régler la couleur de la sortie de lumière ;

caractérisé en ce que

au moins l'une de la première caractéristique de commande (162), de la deuxième caractéristique de commande (164) et de la troisième caractéristique de commande (166) est présentée comme une caractéristique de type roue déroulante, et
 les un ou plusieurs processeurs (120) sont configurés pour sortir au moins l'un du premier signal de commande, du deuxième signal de commande et du troisième signal de commande seulement après que la manipulation de l'au moins un élément associé parmi le premier élément de commande (162), le deuxième élément de commande (164) et le troisième élément de commande (166) a cessé.

13. Dispositif de contrôle (100) de la revendication 12, dans lequel au moins l'un du mode d'ajustement d'intensité, du mode d'ajustement de la couleur de Planck et du mode d'ajustement de la couleur réelle est basculable entre des états actif et inactif sur la base du fait que l'au moins un élément associé parmi le premier élément de commande (162), le deuxième élément de commande (164) et le troisième élément de commande (166) est manipulé.

14. Dispositif de contrôle (100) de la revendication 12, dans lequel le champ de caractéristiques de commande sélectionnables (160) comprend en outre une caractéristique de basculement de mode de réglage:

associé de manière opérationnelle à au moins l'un du mode de réglage de l'intensité, du mode de réglage de la couleur de Planck et du mode de réglage de la couleur réelle ; et
 configuré pour faire basculer l'un au moins du mode de réglage d'intensité, du mode de réglage de la couleur de Planck et du mode de réglage de la couleur réelle entre des états actif et inactif sur la base d'une manipulation de la fonction de basculement du mode de réglage.

15. Dispositif de contrôle (100) de la revendication 12, dans lequel l'interface utilisateur (150)

comprend un écran tactile (140) configuré pour afficher le champ de caractéristiques de commande sélectionnables (160) sous la forme d'une ou plusieurs icônes lumineuses ; et/ou est configuré pour être couplé de manière communicative avec un affichage sensible au toucher configuré pour afficher le champ de caractéristiques de commande sélectionnables (160) sous la forme d'une ou plusieurs icônes basées sur la lumière.

16. Dispositif de contrôle (100) de la revendication 12, dans lequel:

les un ou plusieurs processeurs (120) sont configurés pour présenter chacune de la première caractéristique de commande (162), de la deuxième caractéristique de commande (164) et de la troisième caractéristique de commande (166) sur l'interface utilisateur (150) comme une caractéristique de type roue déroulante.

Figure 1A

(Prior Art)

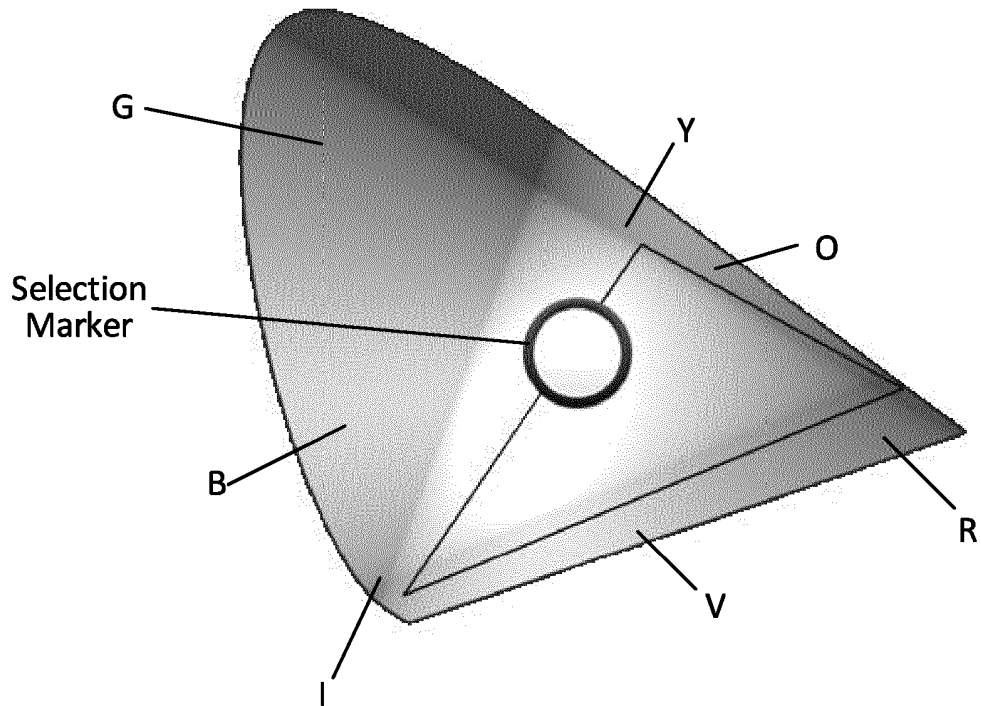


Figure 1B

(Prior Art)

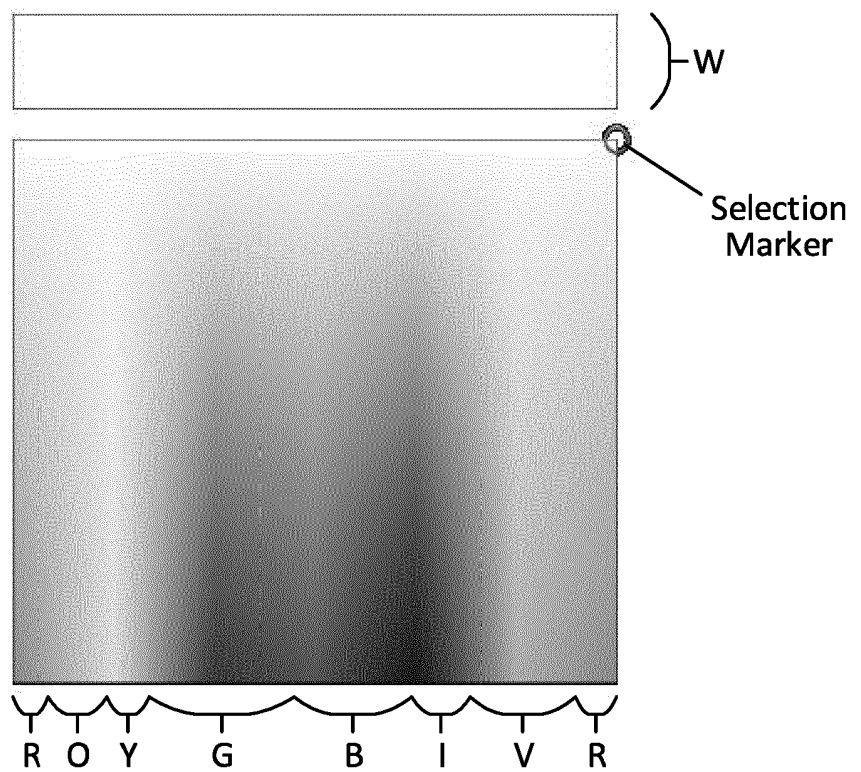


Figure 1C

(Prior Art)

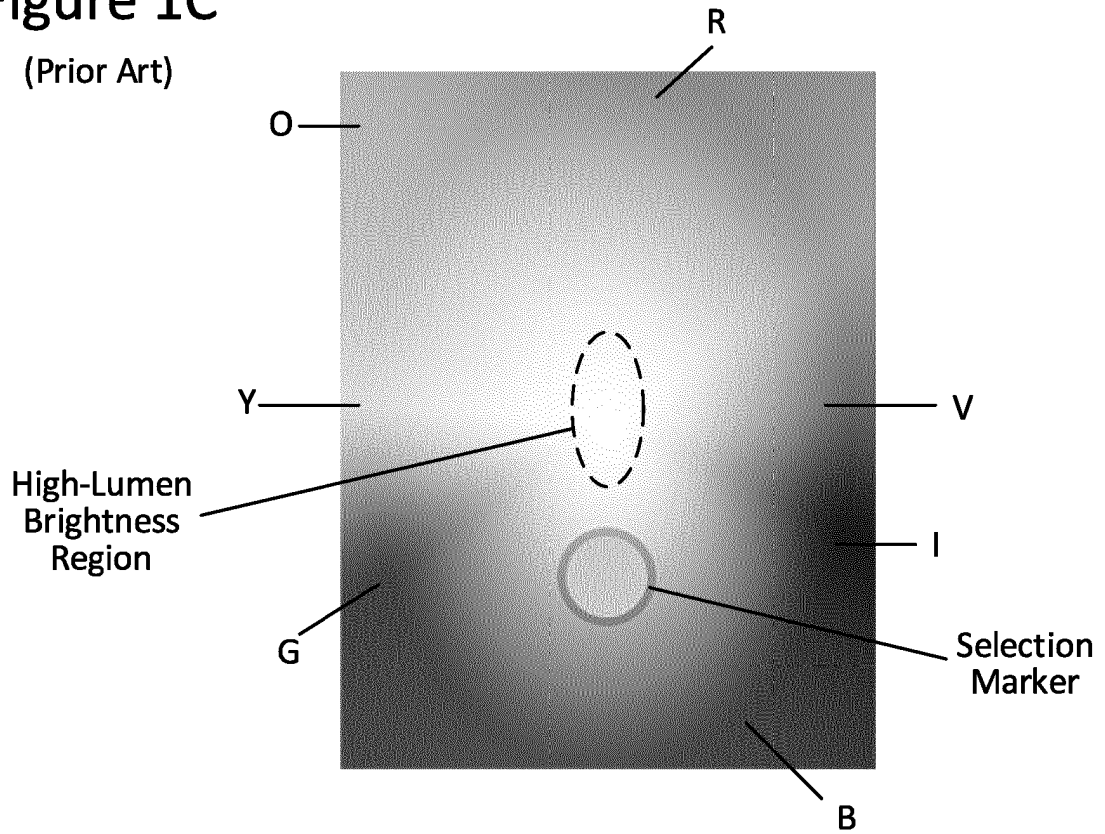


Figure 1D

(Prior Art)

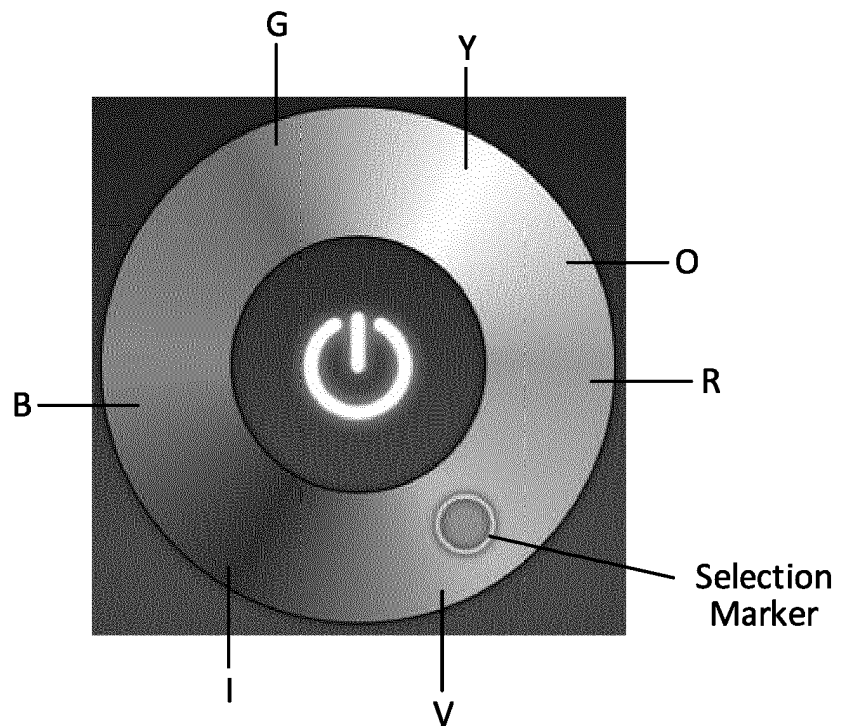


Figure 2

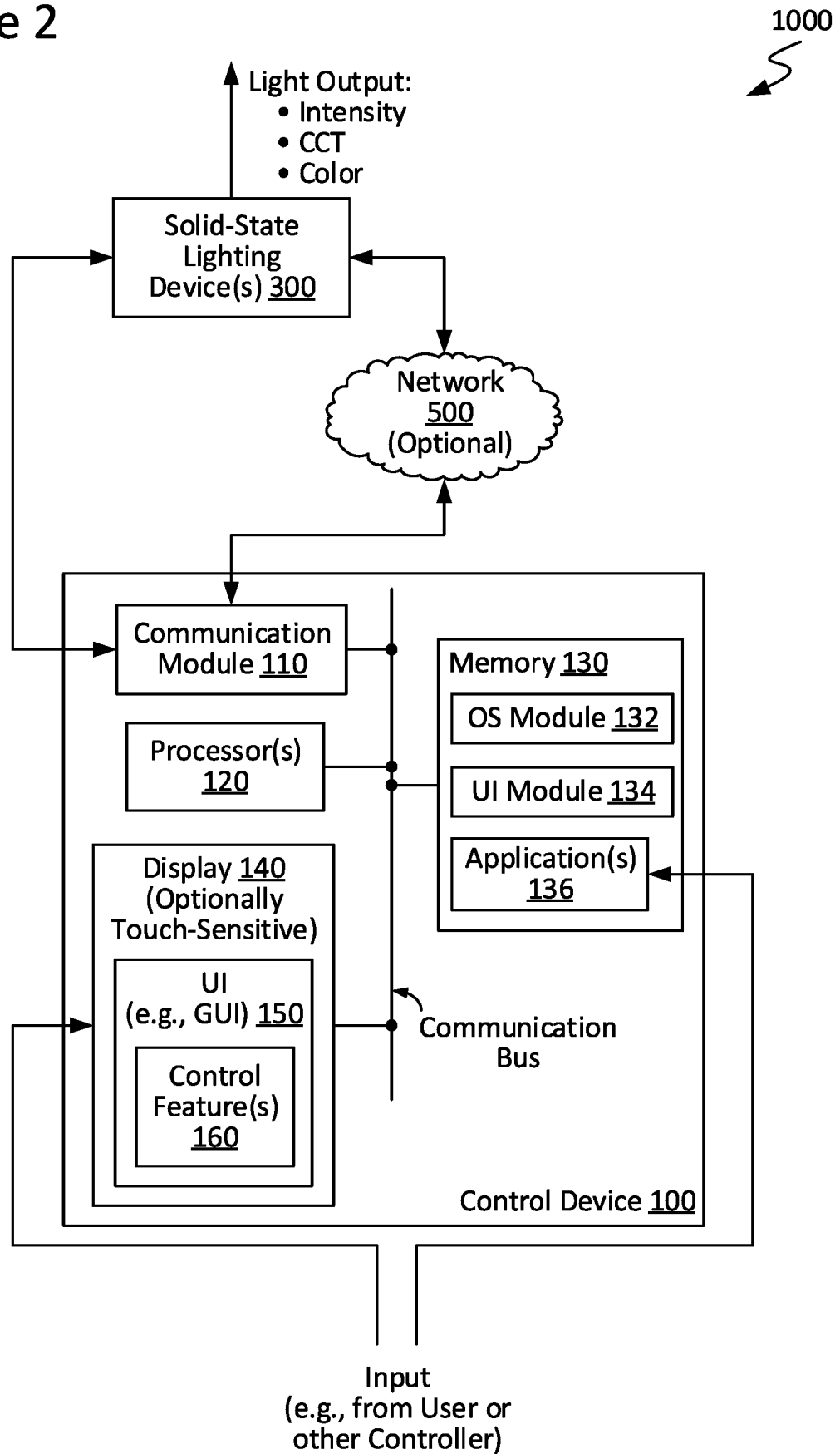


Figure 3

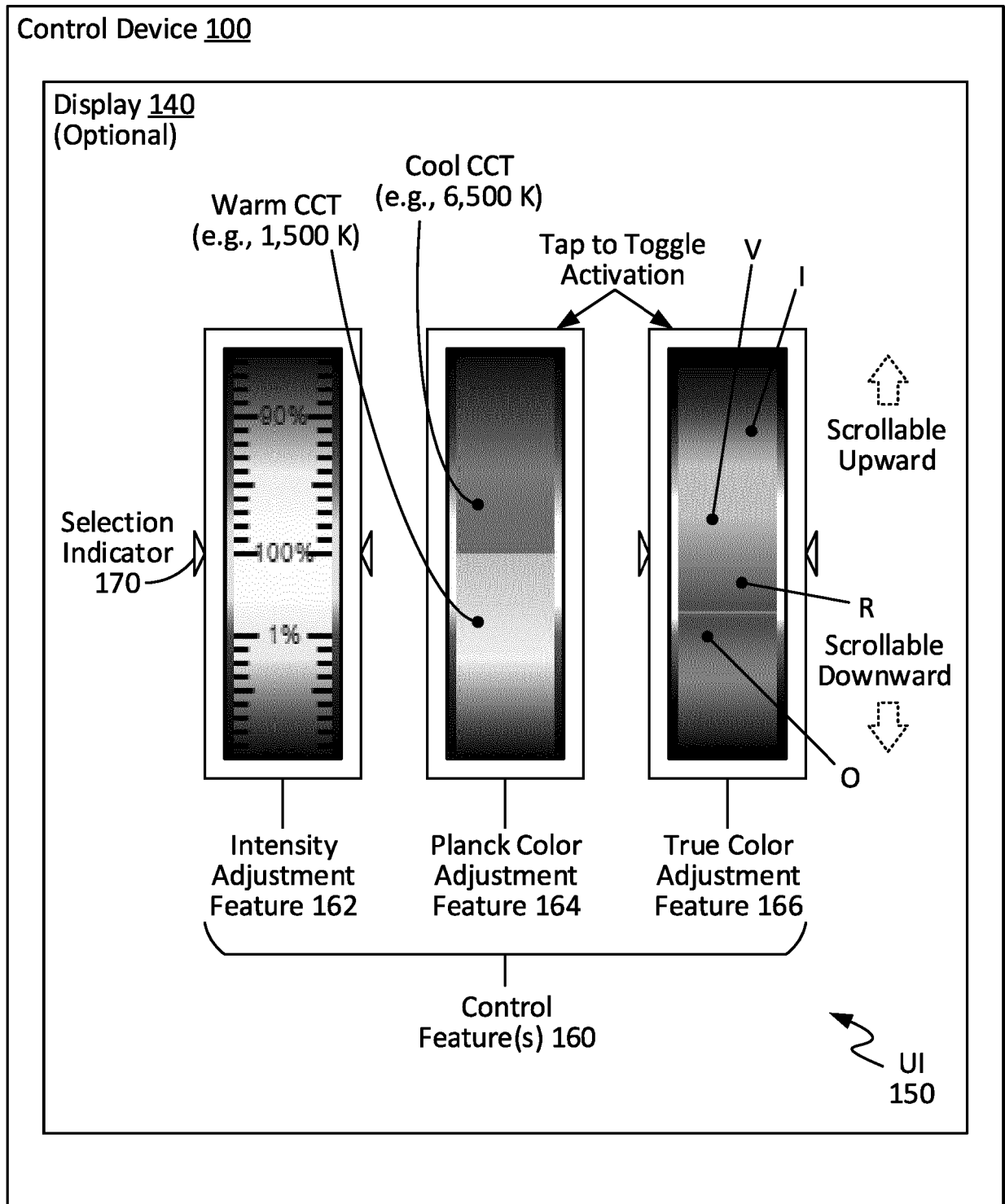


Figure 4

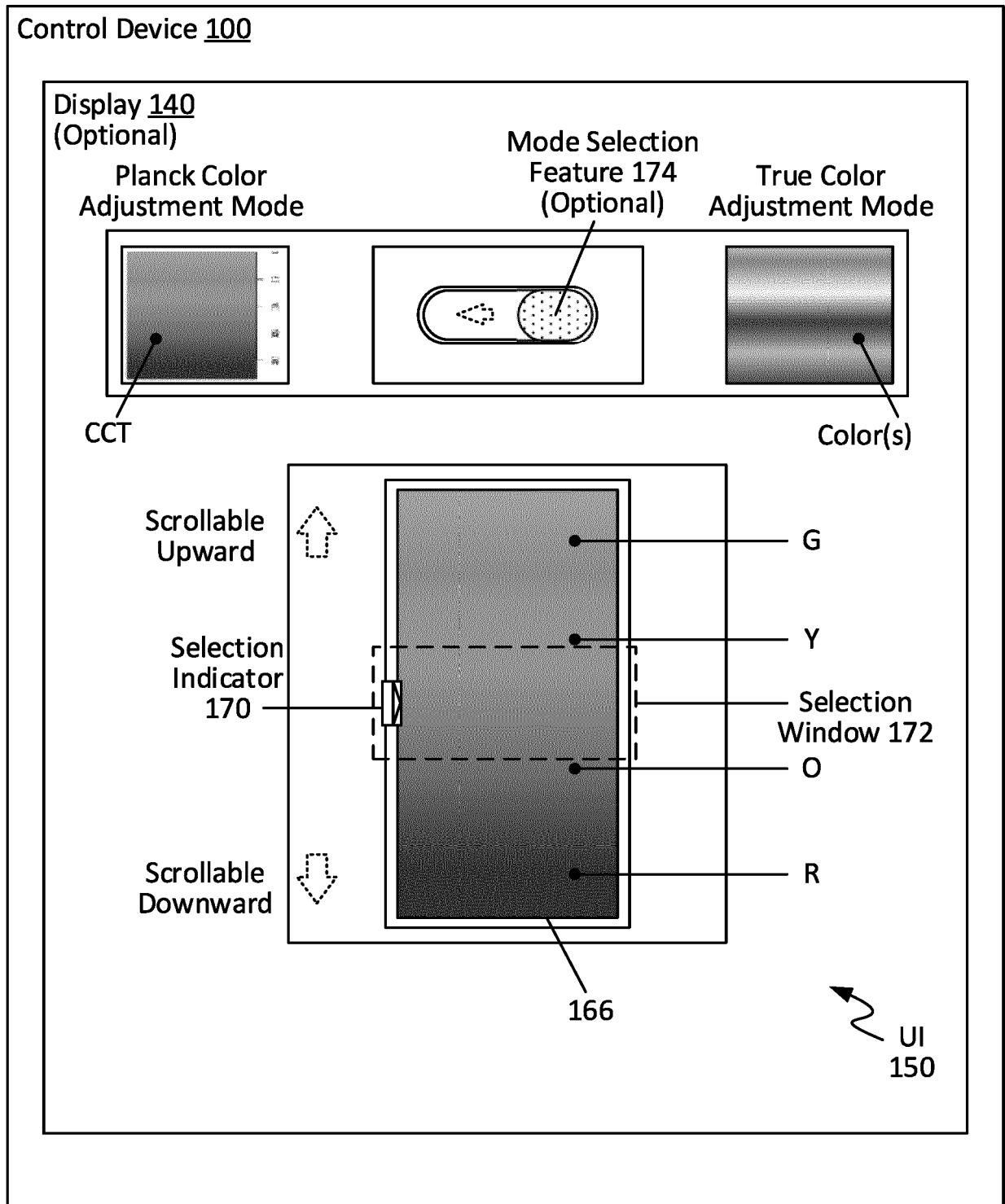
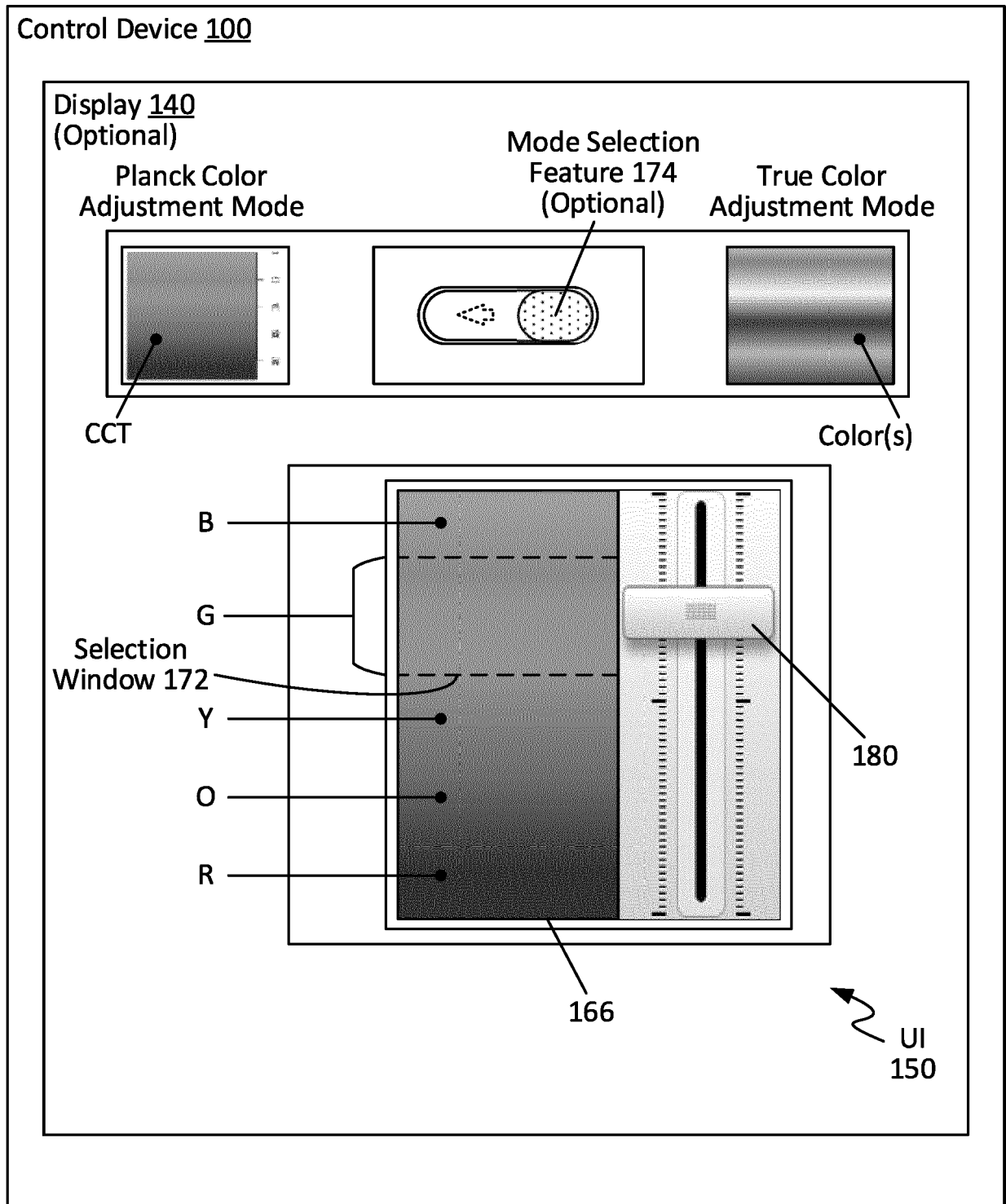


Figure 5



REFERENCES CITED IN THE DESCRIPTION

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